LIFEPOPWAT session

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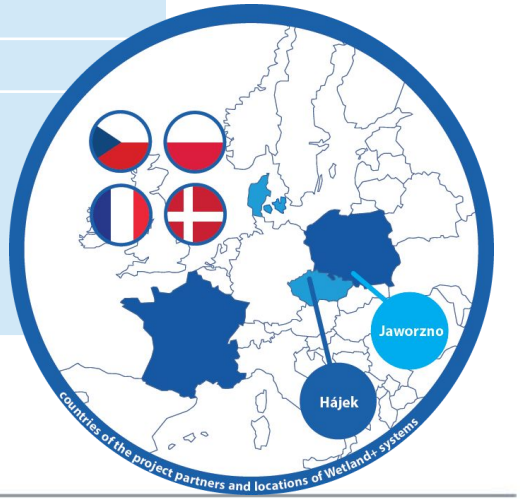
LIFE POP WAT

„Innovative technology based on constructed wetlands for treatment of pesticide contaminated waters“ - LIFE18 ENV/CZ/000374

Project title	Innovative technology based on constructed wetlands for treatment of pesticide contaminated waters
Project acronym	LIFEPOPWAT
Duration	48 months (01/2020 – 12/2023)
Total budget	3.16 mil €
Coordinating beneficiary	• Technical university of Liberec (CZ)
Associated beneficiaries	• Central Mining Institute GIG (PL) • City of Jaworzno (PL) • Aarhus university (DK) • SERPOL (FR) • DIAMO state enterprise (CZ) • Photon Water Technology s.r.o (CZ)



LIFEPOPWAT – „LIFE OVER POPS IN WATER“ https://cxi.tul.cz/lifepopwat

TECHNICAL UNIVERSITY OF LIBEREC www.tul.cz
PHOTON WATER
Jaworzno
AARHUS UNIVERSITY
GIG
SERPOL
DIAMO
Ministerstvo životního prostředí

Content of the section

1. Intro to the project and Wetland+® technology (M. Černík)
2. Experience from adaptation and operation (J. Němeček)
3. Benthic diatoms in the Wetland+® system (M. Štrojsová)
4. Plants in the Wetland+® system (C. Arias)
5. A practical lesson of difficulties in construction (B. Konczak)
6. HCH indication via phytoscreening (P. Hrabak)
7. Socio economic impact (M. Černík)
8. Offer to the clients for Wetland+® replication (A. Joubert)
9. Discussion

ČERNÍK, MIROSLAV

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14th International HCH and Pesticides Forum

WETLAND+® TECHNOLOGY: TREATMENT OF HCH CONTAMINATED WATER BY A PASSIVE BIOLOGICALLY BASED REMEDIATION SYSTEM

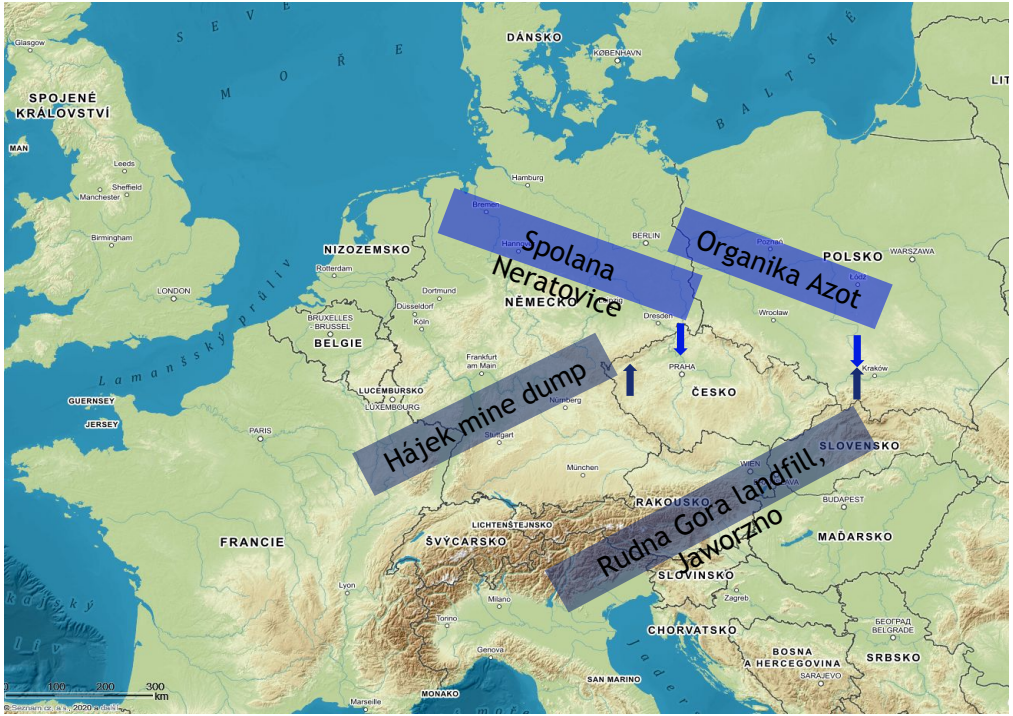
M. Černík, P. Hrabák, P. Bruček

Project outline

- Construction of 2 prototype Wetland+® for water purification from HCH and its transformation products ClB
- Monitoring of environmental and socio-economic impact
- Replication of prototype wetland at similar sites in EU
- Dissemination of project results

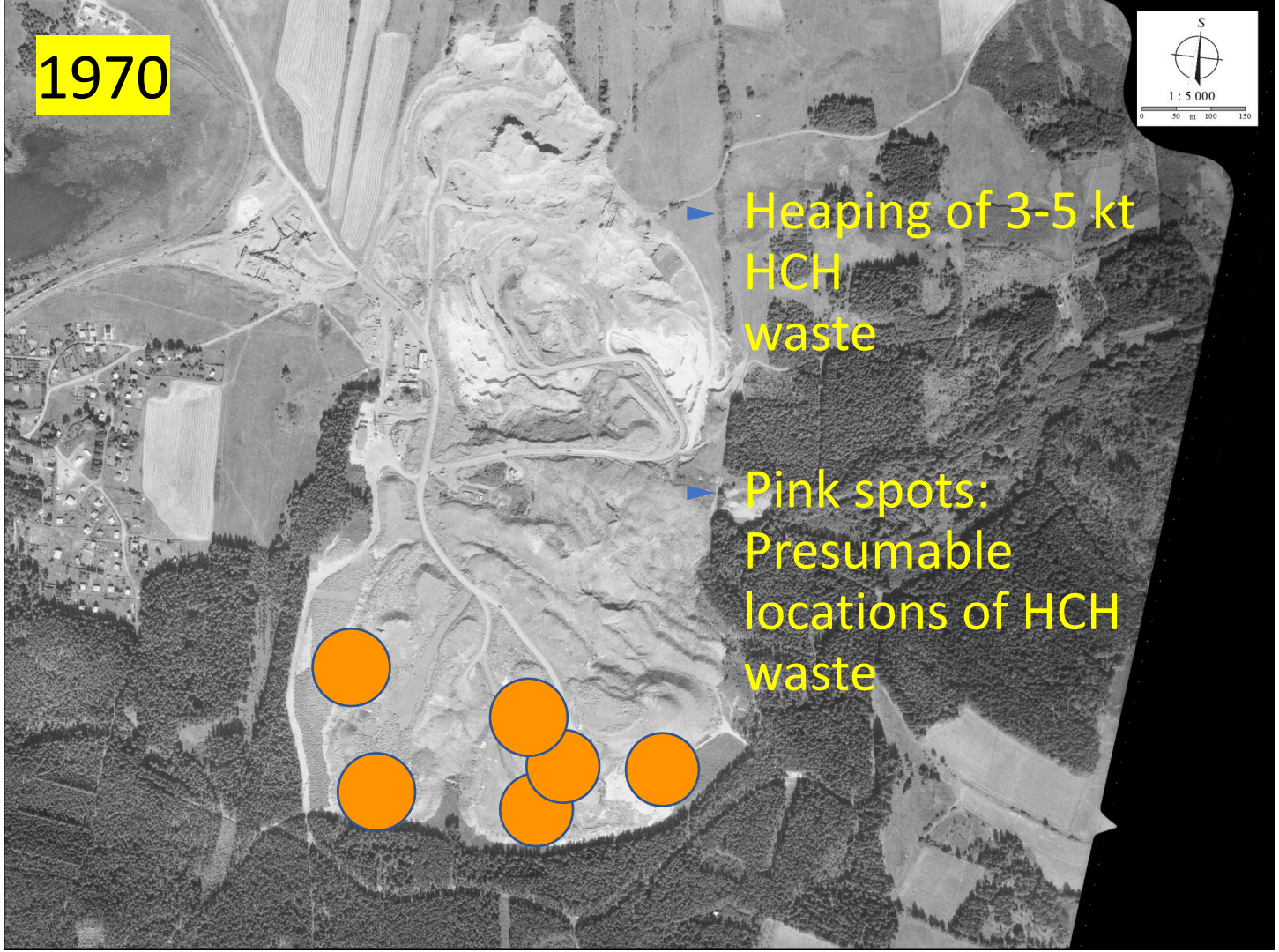
Pilot sites

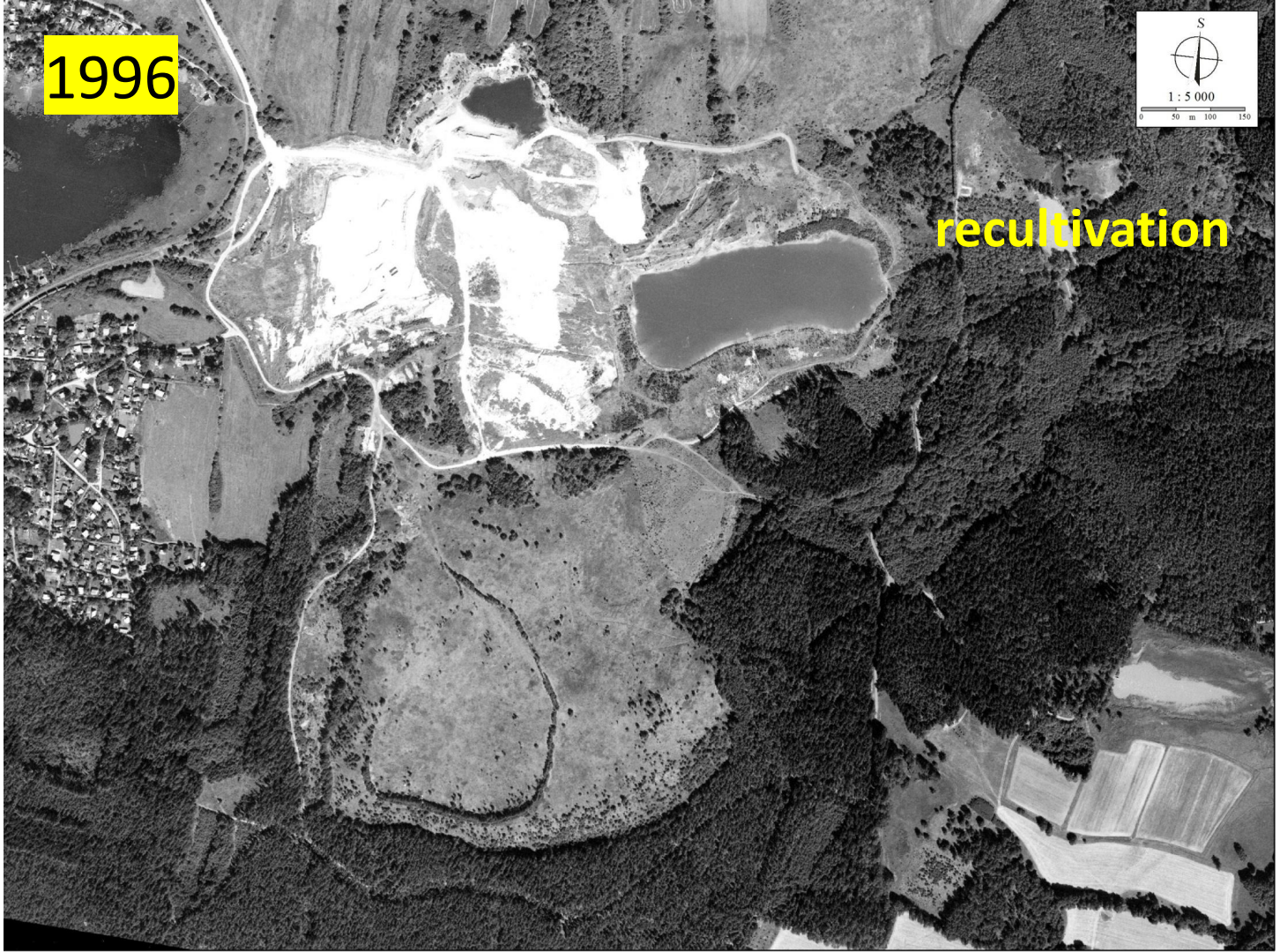
- Hajek (CZ) – full scale remediation (3 L/s)
- Jaworzno – experimental system (other pestcides)

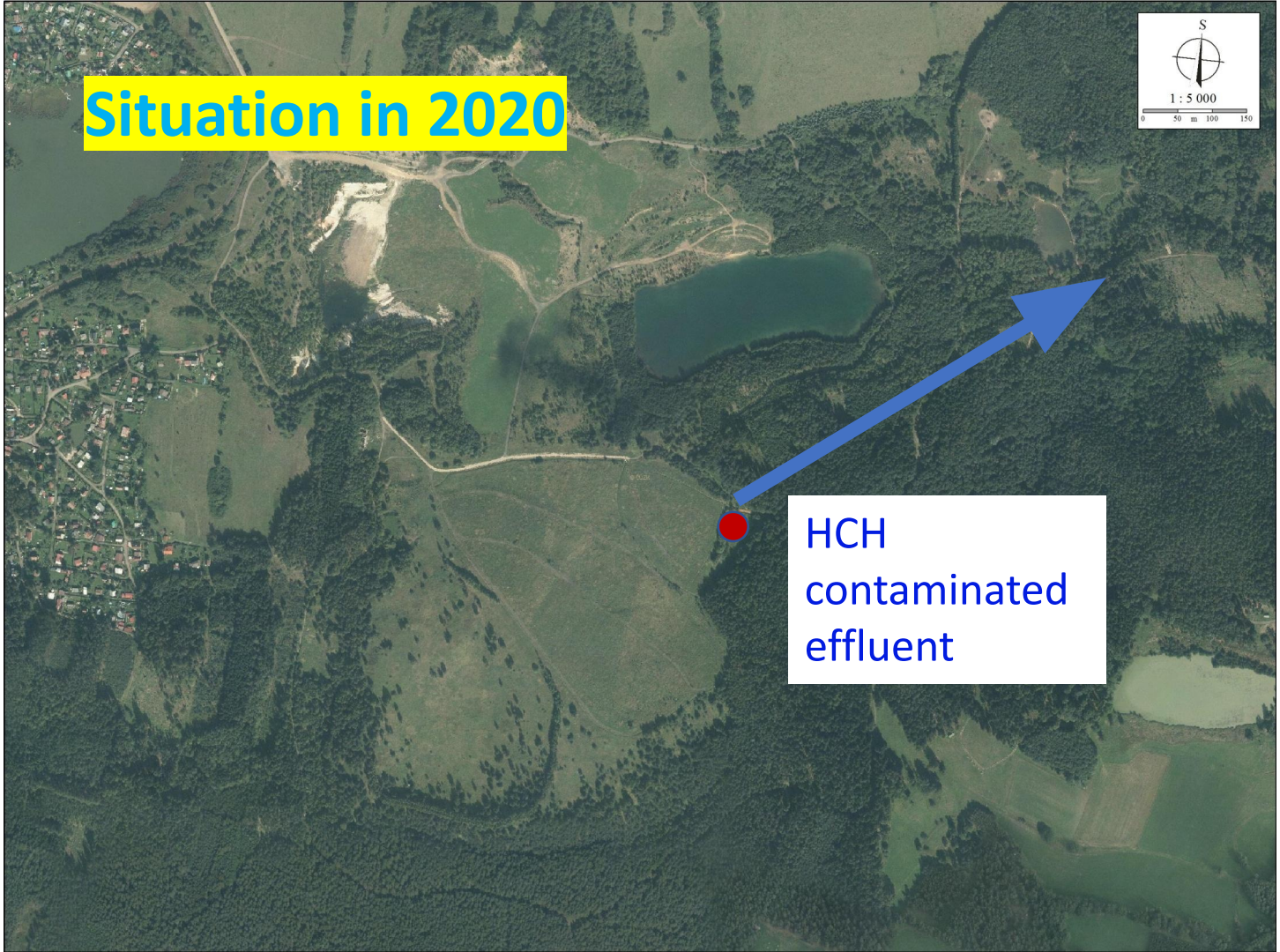


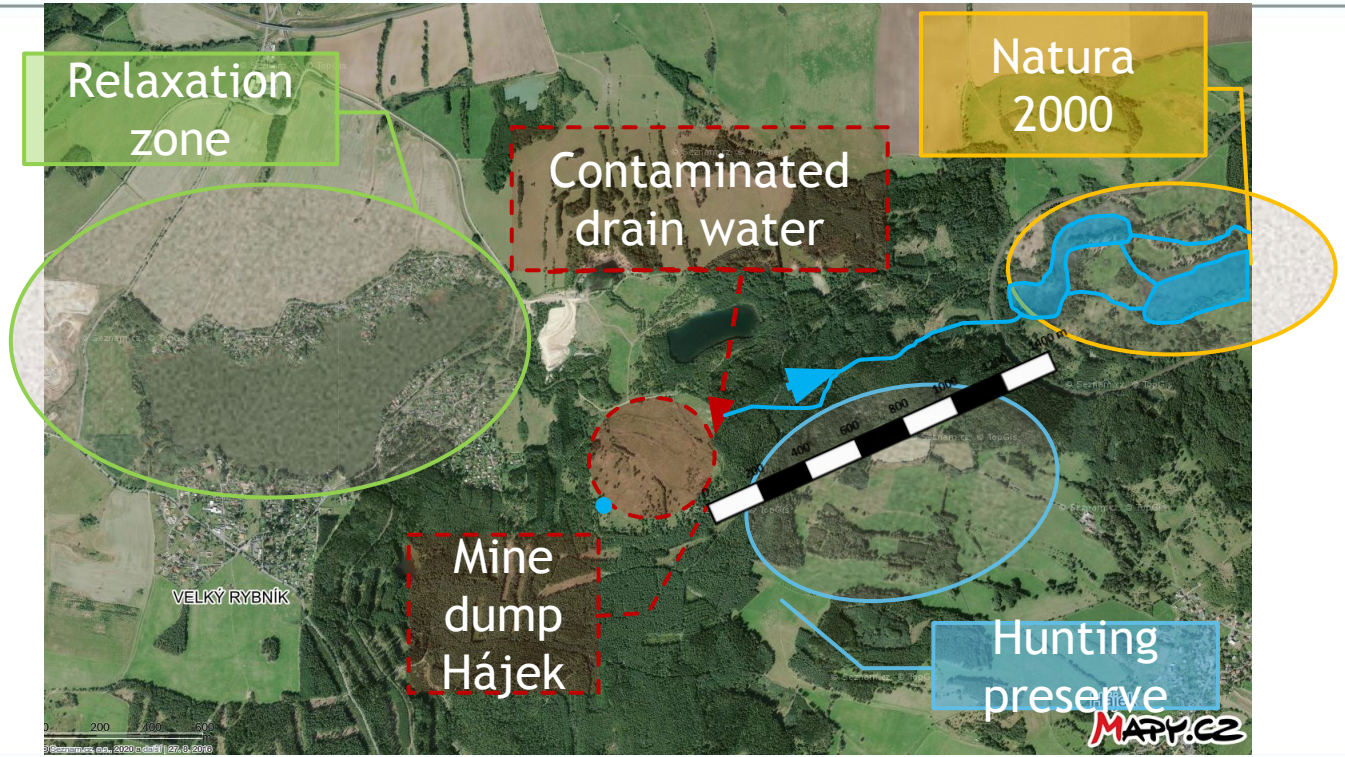
Hajek site


1965
S
1 : 5 000
0 50 m 100 150
1965 quarry opening


1970
S
1 : 5 000
0 50 m 100 150
Heaping of 3-5 kt HCH waste
Pink spots: Presumable locations of HCH waste


1996
S
1 : 5 000
0 50 m 100 150
recultivation


Situation in 2020
S
1 : 5 000
0 50 m 100 150
HCH contaminated effluent


Relaxation zone
Natura 2000
Contaminated drain water
Mine dump Hájek
Hunting preserve
VELKÝ RYBNÍK
MAPY.CZ

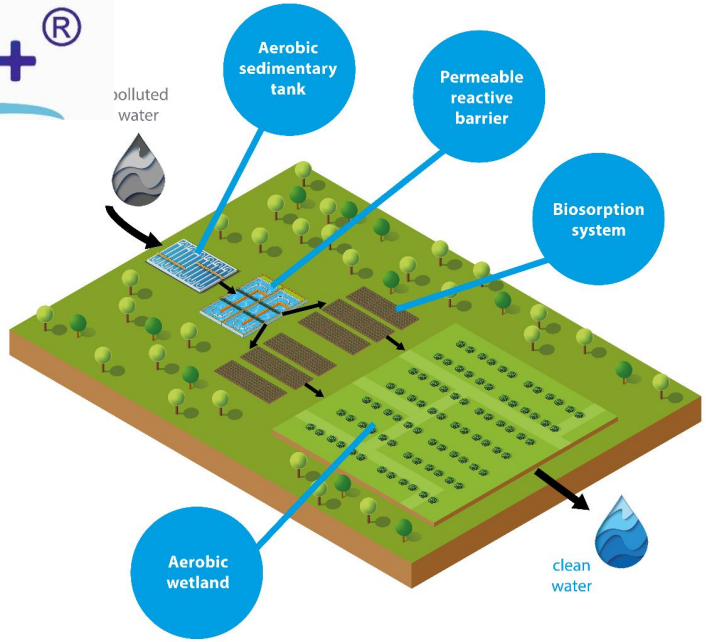
Sedimentation of suspended particles to prevent clogging

Chemical reduction of HCH, formation of reducing conditions

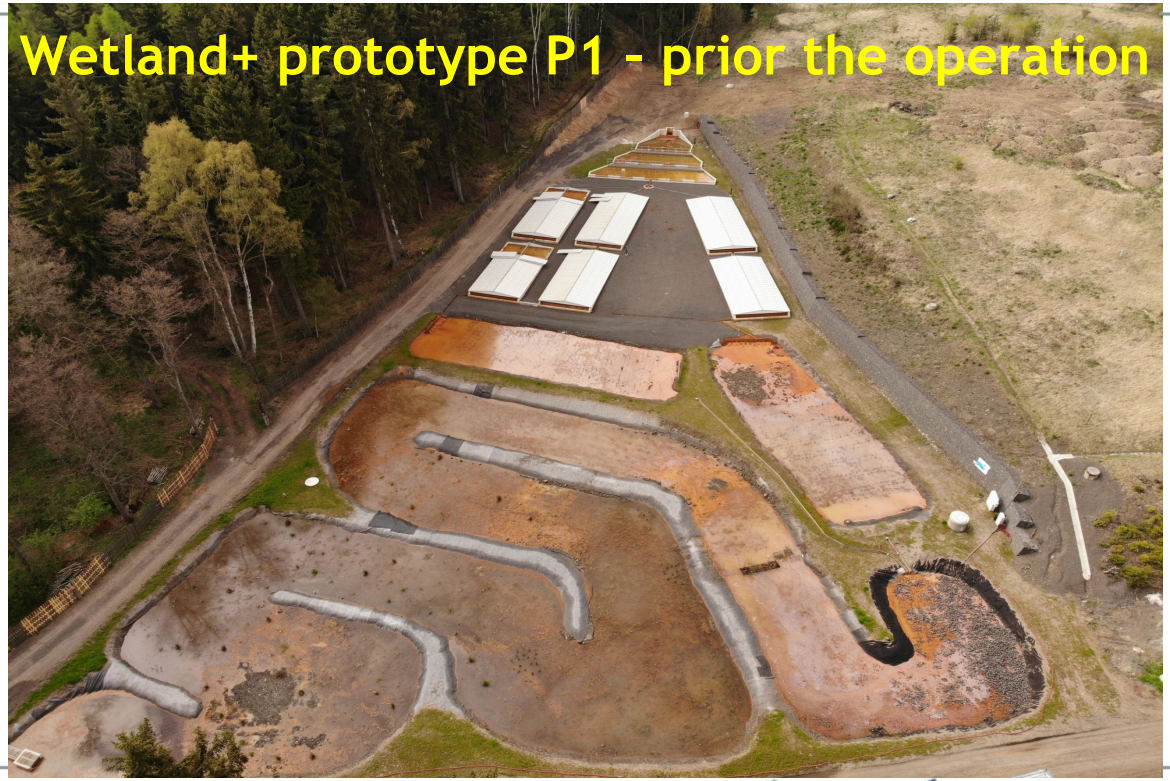
Biofilters and biodegradation

Polishing treatment step – aerobic wetland

Wetland+®



Wetland+ prototype P1 - prior the operation



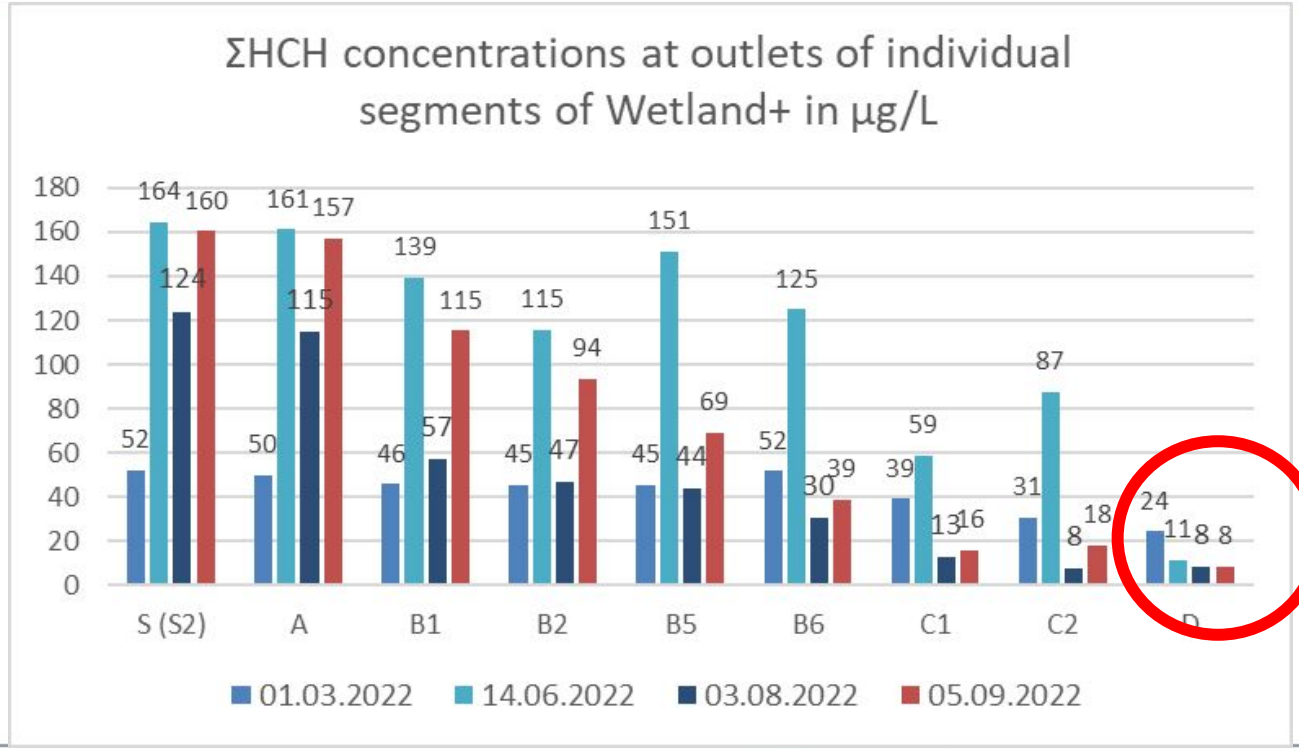
Wetland+ prototype P1 – 1 year of operation

2021

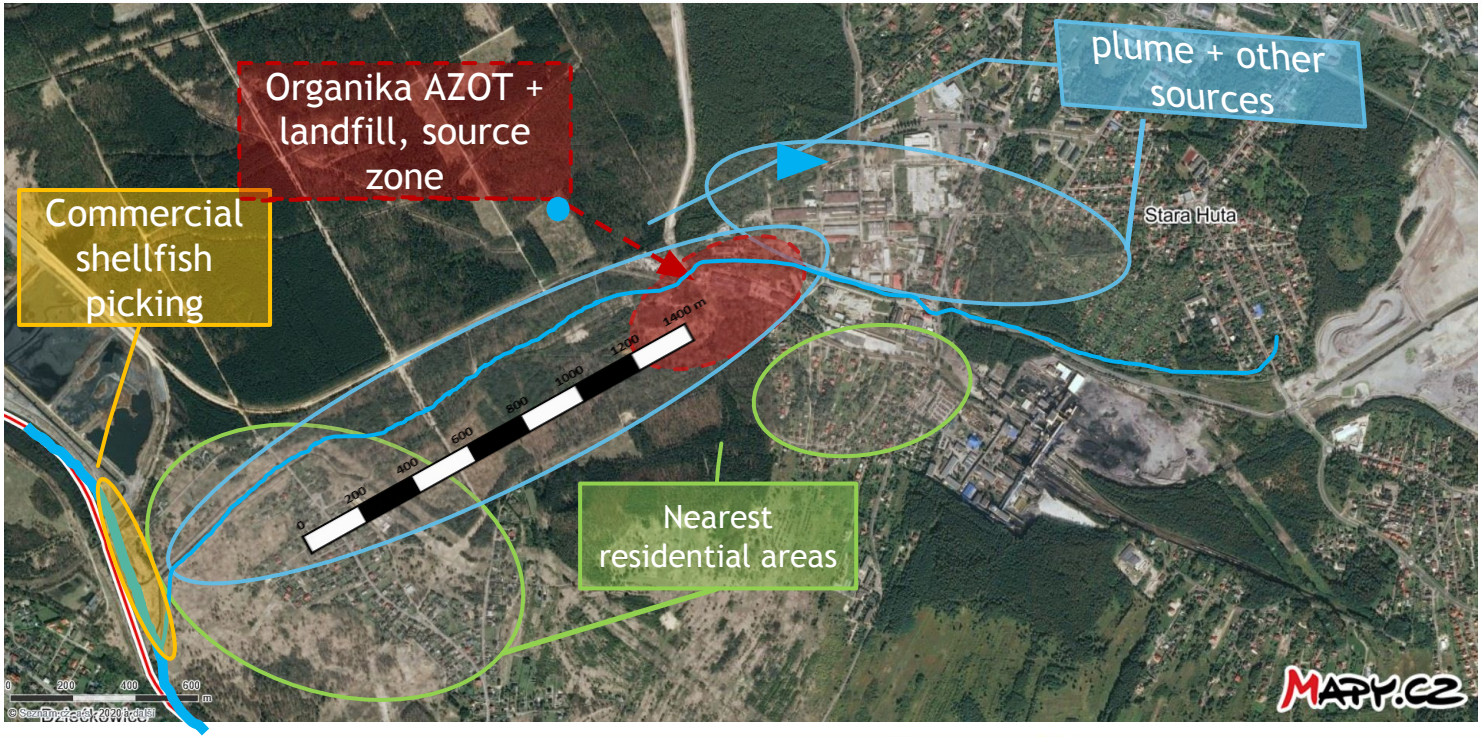
2022

2021

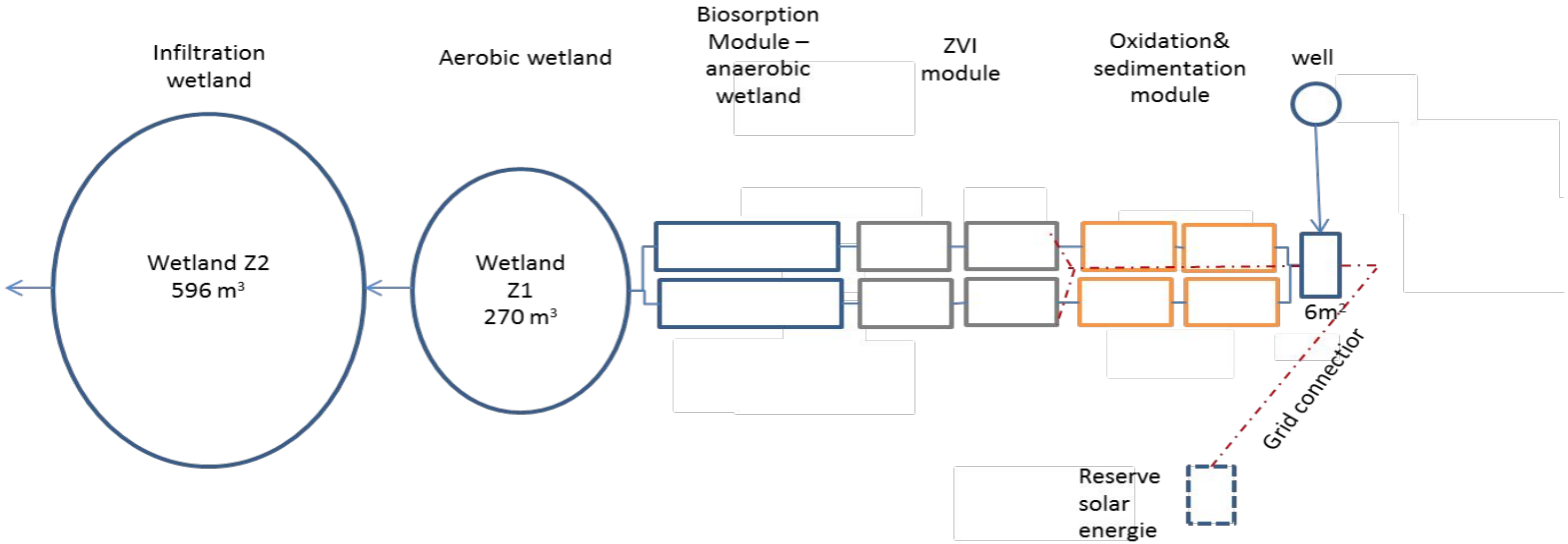
2022


ΣHCH concentrations at outlets of individual segments of Wetland+ in µg/L
180
160
140
120
100
80
60
40
20
0
164
160
124
161
157
115
139
115
57
115
94
45
47
151
69
45
44
125
52
30
39
59
39
13
16
87
31
8
18
24
11
8
8
S (S2)
A
B1
B2
B5
B6
C1
C2
D
01.03.2022
14.06.2022
03.08.2022
05.09.2022

Jaworzno site


Organika AZOT + landfill, source zone
plume + other sources
Commercial shellfish picking
Nearest residential areas
Stara Huta
0
200
400
600
800
1000
1200
1400 m
MAPY.CZ

P2 – small modular system



Construction finished – start of operation

Details in following presentation…..